



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,281	04/14/2004	Robert A. Pangreic		6203

7590
Robert Pangreic
1104 5th Street
LaSalle, IL 61301

05/21/2007

EXAMINER

MUI, CHRISTINE T

ART UNIT	PAPER NUMBER
----------	--------------

1709

MAIL DATE	DELIVERY MODE
-----------	---------------

05/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/824,281

Applicant(s)

PANGRCIC, ROBERT A.

Examiner

Christine T. Mui

Art Unit

1709

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because there are numerous reference characters throughout the specifications that have been used to designate multiple aspects of the invention. An example is in Figure 2, the container and hotplate are referred to 300. A corrected figure will denote the container and hotplate as 300 and 310 respectively. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show several entities of the invention as described in the specification. An example is in Figure 3a, 408 is not shown as described in the specifications. The specifications or drawings need to be modified so that the drawings correspond to the specifications having 408 on the drawing or the specification needs to be modified so that it states that 408 is not connected to side 402. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP §

Art Unit: 1709

608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 18 is objected to because of the following informalities: The value for a Young's Modulus in the range of 10 to 13*10³ N/mm² should be (10 to 13) *10³ N/mm². Appropriate correction is required.

Specification

4. The disclosure is objected to because of the following informalities: The value for a Young's Modulus in the range of 8 to 15*10³ N/mm² should be (8 to 15) *10³ N/mm². Appropriate correction is required.

5. The use of the trademark TEFLON has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. In fact, the value of a trademark would be lost to the extent that it became descriptive of a product, rather than used as an identification of a source or origin of a product. Thus, the use of a trademark or trade name in a claim to identify or describe a material or product would not only render a claim indefinite, but would also constitute an improper use of the trademark or trade name.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1709

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 2,907,671 to Duvivier (herein referred to "Duvivier").

Duvivier teaches a graphite crucible with a protective coating, which can be TEFLON that is impervious to or resists acids and be able to withstand temperatures as high as 400 degrees Celsius (see column 2, lines 9-26 and column 6, lines 43-45). The electrolytes or acids to be used in the container as claimed in claims 2-5 are directed to the intended use of the container and not a limitation of the container as claimed. The graphite crucible is able to hold and resist acids such as sulfuric, hydrofluoric and perchloric acid as claimed. When the container is in the form of a crucible it is an inherent property that the bottom and side are not connect to each other so that they are at exactly at a right angle but instead will have a bow or slight curve between the two parts.

10. Claims 1-7, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 2,181,092 to Ness (herein referred to "Ness").

Ness teaches a graphite crucible with a refractory lining material interpreted to be non-reactive coating (see page 2, right column, lines 50-58). It is an inherent property that a crucible is able to hold or retain a substance or material, which can be an acid consisting of sulfuric, hydrofluoric or perchloric acid as claimed. The graphite crucible in the reference is able to have the structure wherein the bottom and sides have a bow-like or slightly curved shape (see Figure 1).

Art Unit: 1709

11. Claims 1-6 and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 4,784,978 to Ogasawara (herein referred to "Ogasawara").

Ogasawara teaches a graphite crucible with a cover able to hold boric acid and subjected to high temperatures at 1600 degrees Celsius (see column 10, lines 15-23). A crucible able to hold liquids has a bottom and sides which are connected to each other and are in transition with each other so that they are not at exactly at a right angle and will have a bow or slight curve between the two parts.

12. Claims 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 3,858,767 to Borin (herein referred to "Borin").

Borin discloses a container for holding materials used in the presence of coffee comprising of a single-piece molded plastic (see column 1, line 7; column 2, lines 51-52) wherein the bottom has a flat bottom with sidewalls that extend upwardly and outwardly from the bottom (see column 2, lines 62-65). The container has a lid that covers the top opening of the container in the form of a cup (see column 2, lines 30-31). The container also has a spout (see column 2, line 30) to permit efficient pouring of a beverage from the container (see column 5, lines 10-12).

13. Claims 1-6, 9, 10 and 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 03-106371 to Imam (herein referred to "Imam").

Imam discloses a silicon carbide based crucible able to hold materials or substances from a mixture of silicon carbide powder and graphite flakes bound together and pressed together in a mould. The silicon carbide crucible is further constructed to have spouts or handling lugs (see page 5).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1709

18. Claim 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5,820,681 to Colombo (herein referred to "Colombo") in view of USP 3,859,193 to Bednarski (herein referred to "Bednarski").

Colombo discloses the claimed invention of a single piece container except for the property, which enables it to contain an electrolyte when testing and being made of a non-reactive material for high temperature preparation. Bednarski teaches a pyrolytic graphite working electrode-electrolysis cell retaining a sample (see column 1, lines 63-64), which can be subjected to high temperatures of 1000 degrees Celsius (see column 8, line 11). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a graphite or graphite composite container having the properties claimed.

19. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colombo and Bednarski as applied to claim 1 above.

Colombo and Bednarski teach the container disclosed in claim 1. Bednarski teaches the container capable of holding an aqueous solution of an electrolyte (see column 2, line 15-16) where the container is able to hold a reaction media of acids which include acetic, acetic –perchloric, trifluoroacetic and methane sulfonic acid (see column 3, line 34). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a container to hold an electrolyte to expand the use and ability of the container.

Art Unit: 1709

20. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colombo and Bednarski as applied to claim 2 above, and further in view of USP 4,115,239 to Bouy et al. (herein referred to "Bouy").

Colombo and Bednarski teach the container disclosed in claim 1. Bednarski teaches the container capable of holding an aqueous solution of an electrolyte (see column 2, line 15-16). Bouy teaches a container in the form of a crucible able to hold a volume of hydrofluoric and sulfuric acids (see column 2, lines 27-36). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a container used to contain an electrolyte in specific, a volume of hydrofluoric or sulfuric acid.

21. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colombo and Bednarski as applied to claim 2 above, and further in view of USP 5,798,183 to Hosono et al. (herein referred to "Hosono").

Colombo and Bednarski teach the container disclosed in claim 1. Bednarski teaches the container capable of holding an aqueous solution of an electrolyte (see column 2, line 15-16). Hosono teaches a container in the form of a crucible able to hold a volume of perchloric acid (see column 11, lines 19-20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a container used to contain an electrolyte in specific, a volume of perchloric acid.

22. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colombo in view of Bednarski as applied to claim 6 above.

In claims 7 and 8, the references Colombo and Bednarski teach the claimed invention except for the partial coating of a non-reactive, polytetrafluoroethylene. Bednarski teaches a graphite container serving as the electrode-electrolysis cell where a portion, specifically the upper portion of the porous insulator tube is covered with a tightly fitting film, such as polytetrafluoroethylene, such that the modification would prevent loss of electrolyte (see column 6, lines 3 and 36-39). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct part of the container with polytetrafluoroethylene, which is known in the art that polytetrafluoroethylene is used as a very non-reactive and often used in containers and pipework for reactive and corrosive chemicals.

23. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colombo and Bednarski as applied to claim 6 above, and further in view of USP 5,919,303 to Holder (herein referred to "Holder").

Colombo and Bednarski teach the container disclosed in claim 1 except for the property where the transition between bottom and sidewalls are bent or curved. Holder teaches that is known to construct a crucible having the bottom parabolic to the sidewalls (see column 5, lines 14 and 28-32). The construction of a container having the bottom parabolic to the sidewalls has the characteristics of being bent or curved. It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a container in the form of a crucible having the base or bottom of the container transition to the sidewalls in a bent or curved orientation to insure material

Art Unit: 1709

are not stuck in the corners of the container and to enable easy cleaning of the container.

24. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Borin as applied to claim 11 above, and further in view of USP 5,765,705 to Deubel (herein referred to "Deubel").

In the reference, Borin discloses the claimed invention of a container with a cover obtaining disclosed properties except for the cover matingly engages the container with at least one flange and a c-channel where the cover engages. Deubel teaches a container where it is known to have a cover engaging with a flange extending from the container (see column 1, line 65-66) and recesses formed in the cap lid inside surface (see column 4, line 60). The container locks the cap lid in place when the side surfaces and the angled intermediate surfaces fit within the recess (see column 5, line 6-8). The lock position of the container forms a c-channel with the cap lid and the flange on the container. It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a container with a cover forming a tight seal with a flange and a c-channel to secure materials or acids within the container if disrupted.

25. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borin as applied to claim 10 above, and further in view of USP 3,817,430 to Borin (herein referred to #430).

In claim 14, the reference Borin discloses the container except for the handle. The reference #430 teaches that is known to have a container with a handle means (see column 3, line 24). It would have been obvious to one having ordinary skill in the

Art Unit: 1709

art at the time the invention was made to construct a handle means as taught by #430 since #430 states at column 3, line 24-25 that such a modification would have a person be able to readily grasp the container with one hand.

In claim 15, the reference Borin discloses the container except for the handle with a spout. The reference #430 teaches that is known to have a container with a handle means with a spout to pour liquid (see column 3, line 21 and 27). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a handle means as taught by #430 since #430 states at column 3, line 24-25 that such a modification would have a person be able to readily grasp the container with one hand and be able to pour liquid therefrom.

26. Claim 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Duvivier, Ness or Ogasawara in view of Bol'shakova et al. (herein referred to "Bol'shakova"). The references Duvivier, Ness or Ogasawara teach graphite or graphite composite crucibles that are molded and able to hold acids at high temperatures. Bol'shakova discloses graphite crucibles with a thermal conductivity ranges from 50 to 150 W/m*K which encompass the range of 40 to 120 W/m*K claimed (see page 246). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the graphite or graphite crucible with the claimed thermal conductivity so that when heating the crucible is able to heat the contents in the internal cavity efficiently.

27. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colombo in view Ogasawara and Bol'shakova et al. (herein referred to "Bol'shakova").

In the reference, Colombo discloses the claimed invention as a container constructed of a single piece of a material with graphite composite (see column 2, line 66-67; column 3, line 1 and column 7, line 15) except for the aspect of being resistant to acids, the ability to being subjected to temperatures of at least 400 degrees Celsius and having the thermal conductivity disclosed in the claim. In the reference, Ogasawara discloses the claimed invention as a graphite crucible holding an acid and subjected to a heat of over 400 degrees Celsius (see column 12, line 48, 53-54), except for having the thermal conductivity claimed. In the reference, Bol'shakova discloses graphite crucibles with a thermal conductivity ranges from 50 to 150 W/m*K within the range of 40 to 120 W/m*K disclosed (see page 246). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the unibody crucible made of graphite of Colombo with the element of heating over 400 degrees Celsius of Ogasawara and the thermal conductivity ranges with the range disclosed in the claim of Bol'shakova, in order to obtain a container to withstand high temperatures with a high thermal conductivity.

28. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duvivier, Ness or Ogasawara in view of Bol'shakova as applied to claim 16 above and further in view of AZoM.com, The A to Z of Materials.

The container disclosed in claim 16 is rejected and the properties of the container are disclosed in the table of Key Properties of commercial graphite and are within the ranges claimed. The reference to AZoM.com discloses properties of commercial graphite to have a compressive strength in the range of 20-200 MPa, a Young's

Art Unit: 1709

Modulus in the range of 8-15 GPa and a bulk density of 1.3-1.95 g/cm³ all within the values disclosed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct a container made of graphite or a graphite composite using commercial graphite having the properties claimed.

29. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duvivier, Ness or Ogasawara in view of Bol'shakova and AzoM.com as applied to claims 17-19 above and further in view of SGL Carbon Group.

In the claims 16-19 above discloses properties of commercial graphite to be used in the construction in a container except for the grade of the graphite is silent. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to use R 7510 as the grade of graphite to construct the container since it was known in the art that R 7510 obtains the properties claimed.

Conclusion

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USP 4,286,646 to Beyer, Horst; SUP 5,888,298 to Yanagimachi, Takahiro et al; USP 5,158,750 to Finicle, Robert; USP 5,882,817 to Hall, John et al.; USP 6,524,549 to Mohri, Masahide et al.; JP 60118685 to Nippon Rutsubo; JP 06329494 to Komatsu Denshi Kinzouku.

Art Unit: 1709

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine T. Mui whose telephone number is (571) 270-3243. The examiner can normally be reached on Monday-Friday 8-5; Alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CTM

Melvin Mayes
ME
Primary Examiner
AU1734